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2 October 1957

MEMORANDUM FOR THE RECORD

SUBJECT: Summary of Clam Tests to Date at and Discussion of
Additional Testing to be Performed

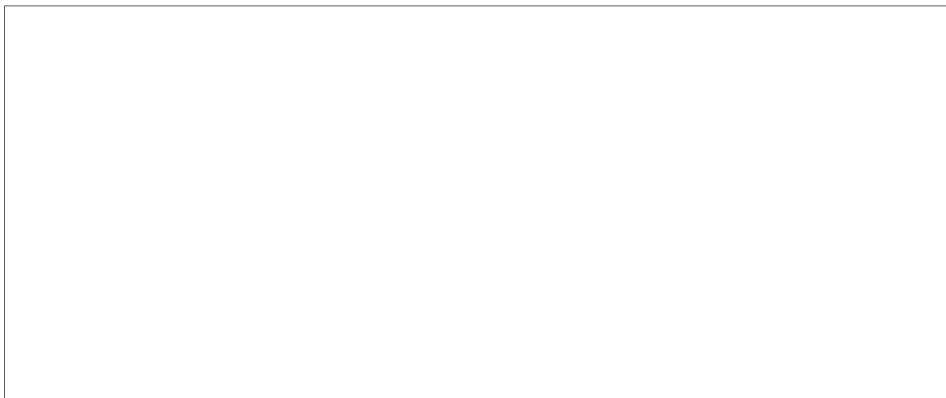
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1. All tests originally outlined have been completed and the results are highly gratifying. The unit has been shown to be highly reliable when used with the normal two C of E Special Non-Electric Blasting Caps.

2. Reliability Tests

- a. Ambient Temperature (two C of E Caps) 100% high order in 303 tests
- b. At 120°F (two C of E Caps) 100% high order in 100 tests (except for 3 incorrect set-ups)
- c. At -30°F (two C of E Caps) 100% high order in 89 tests (again except for 3 incorrect set-ups)
- d. It was found that if one C of E Cap was used in place of two; twenty percent low orders resulted. Two commercial #8 caps together also produced failures so it will be recommended that two Military C of E always be used.

3. Holding Test (with inert loaded units on various parts of a jeep)



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3. (CONT'D)

f. Vertical Side Surface - Holds with four magnets in contact. Falls off with two magnets in contact. Slips with three magnets in contact.

4. Drop Tests - On concrete and gravel at 2, 4, 6, 8, 10 feet.

a. Concrete

2' and 4' - no damage

6', 8' and 10' - cover became loose and time pencil was dented

b. Gravel

2' --- time pencil dented 4', 6', 10'-time pencil ampuls initiated, cover did not loosen

5. Handling at Temperature Extremes

a. 120°F, 30% R.H. -

No problem in loading and attaching caps and pencil - time for one clam about 2 minutes

b. -30°F -

Great difficulty in opening cover-box broke when twisted very hard - knife was finally used to pry cover off.

Time for loading C-4 and adding caps and pencils about 7-1/2 minutes.

Cap was very difficult to insert and several were dangerously dented in the process.

Pencils were difficult to attach due to stiff plastic and several were crushed in process.

6. High Humidity 120°F, 100% R. H.

a. 100% high order in ten units after storage for 48 hours.

7. Penetration

a. Steel (Structural)

The thickness limit for partial penetration was 3/4 inch with a density of 1.42 (average loading)

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8. Water Immersion

- a. 6 inch depth
Approximately seventy tests at various times showed that the longest period in water before water penetration caused misfires was 12 hours.

9. Additional Testing

- a. Handling (loading) tests at 0°F because the tests at -30°F seem unrealistically low (since time pencils give very long delays below 0°F) and because we wish to know if the stiffening of the plastic causes difficulties at the more reasonable temperature of 0°F.
 - b. External Cap -
To demonstrate initiation with time fuse, primacord and electric blasting caps.
 - c. Auto tests -
To demonstrate other points of attack.
 - d. Penetration tests with lid off to determine possible increase in efficiency.
10. The personnel responsible for the testing are apparently earnest in wanting to give us a good report of the testing and have good photographic coverage of the tests.

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